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FSC 112

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**Experimental Design**

Our study is using mushrooms as a partial replacement for meat in various meat products. We will be making meat patties and sausage, using a 50/50 meat to mushroom ratio. We will be doing a difference test with the sausage using adults, a beef patty acceptance test using children (a healthier option of a familiar product to children), and also a moisture analysis on the beef patties.

1. **Hypothesis**

Our hypothesis for this experiment is that replacing part of a meat product with mushrooms will provide favorable nutrition and sensory aspects for the consumer.

1. **Treatments**

The first test that we want to run is the difference test. This test will help us determine if customers can tell the difference between a regular Italian sausage and a Italian sausage that have been replace with 50% of its meat by mushrooms. We will have 2 treatments. One will be the control, which is the regular Italian sausage and the other one will be the Italian sausage that is replace with 50% of meat by mushrooms.

The second test that we want to run is the acceptance test. We want to try replacing 50% of meat patties with mushroom and see if consumer would like this product. We want to test this product with kids because it can be a really nutritious substitution for the kids. We want to see if children would like this product by letting them taste it and see if they will accept it or reject it. In this case we would only have one treatment which is the 50% meat to 50% mushroom.

For the third test, we want to compare the moisture level with regular beef patties and beef patties that have been substituted with 50% of mushroom to its meat weight. We will have 2 treatments. The first treatment will be the control, which are just regular beef patties. The second treatment will be the beef patties that have 50% meat to 50% mushroom.

1. **Sample Sizes**

1st test – Difference test (Italian sausage vs. Italian sausage with 50%mushroom)

30 samples – this number allows us to have an acceptable amount of test that will help us with efficient result.

2nd test – Acceptance test (beef patties with 50% mushroom)

30 samples – this number allows us to have an acceptable amount of test that will help us with efficient result.

3rd test – Moisture Analysis (beef patties vs. beef patties with 50% mushroom)

6 samples – 3 samples are the control, 3 samples are the test subjects

1. **Number of replications**

1st test - Difference test (Italian sausage vs. Italian sausage with 50%mushroom)

 30 tests – for accurate and efficient results

2nd test – Acceptance test (beef patties with 50% mushroom)

 30 tests – for accurate and efficient results

3rd test - Moisture Analysis (beef patties vs. beef patties with 50% mushroom)

 6 tests – 3 tests for control and 3 tests for variables

1. **Timeline**

1st test – Difference test (Italian sausage vs. Italian sausage with 50%mushroom)

 3 hours for preparations and test run

 We will be using the 105 kitchen to prep the food.

 With permission we would like to go to an elementary school to give the test to children.

2nd test – Acceptance test (beef patties with 50% mushroom)

 3 hours for preparations and test run

 We will be using the 105 kitchen to prep the food.

 We will be using the sensory lab to give test to panelists.

3rd test - Moisture Analysis (beef patties vs. beef patties with 50% mushroom)

 2 hours for preparations and test run

 We will be using the 105 kitchen to prep the food.

1. **Supplies**
* Mushrooms (6 lbs of brined mushrooms To-Jo Mushroom Co.)
* Ground beef (5 lbs)
* Pork sausage (3lbs )
	+ Pastry bag
	+ Casing
* Herbs and spices
* Grill
* Grinder
* Plastic plates
* Utensils
* Napkins
* Cups
* Water